

[0018] FIG. 4 is a circuit diagram explaining a switch control circuit included in a display driving circuit according to some example embodiments of inventive concepts;

[0019] FIG. 5 is a circuit diagram explaining a regulator included in a display driving circuit according to some example embodiments of inventive concepts;

[0020] FIG. 6 is a block diagram explaining a display driving circuit according to some example embodiments of inventive concepts;

[0021] FIG. 7 is a circuit diagram explaining a latch circuit included in a display driving circuit according to some example embodiments of inventive concepts;

[0022] FIG. 8 is a table explaining an operation of a display driving circuit according to some example embodiments of inventive concepts;

[0023] FIG. 9 is a timing diagram explaining an operation of a standby (STB) mode of a display driving circuit according to some example embodiments of inventive concepts;

[0024] FIG. 10 is a block diagram explaining an operation of a standby (STB) mode of a display driving circuit according to some example embodiments of inventive concepts;

[0025] FIG. 11 is a timing diagram explaining an operation of a deep standby (DSTB) mode of a display driving circuit according to some example embodiments of inventive concepts;

[0026] FIG. 12 is a block diagram explaining an operation of a deep standby (DSTB) mode of a display driving circuit according to some example embodiments of inventive concepts;

[0027] FIG. 13 is a timing diagram explaining an operation of an abnormal mode of a display driving circuit according to some example embodiments of inventive concepts;

[0028] FIG. 14 is a block diagram explaining an operation of an abnormal mode of a display driving circuit according to some example embodiments of inventive concepts;

[0029] FIG. 15 is a view illustrating a display module according to some embodiments of inventive concepts; and

[0030] FIG. 16 is a diagram illustrating a display system according to some embodiments of inventive concepts.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0031] The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which preferred example embodiments of invention concepts are shown. This invention may, however, be embodied in different forms and should not be construed as limited to the example embodiments set forth herein. Rather, these example embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art. The same reference numbers indicate the same components throughout the specification. In the attached figures, the thickness of layers and regions is exaggerated for clarity.

[0032] It will also be understood that when a layer is referred to as being “on” another layer or substrate, it can be directly on the other layer or substrate, or intervening layers may also be present. In contrast, when an element is referred to as being “directly on” another element, there are no intervening elements present.

[0033] Spatially relative terms, such as “beneath,” “below,” “lower,” “above,” “upper” and the like, may be used herein for ease of description to describe one element or feature’s relationship to another element(s) or feature(s) as illustrated in the figures. It will be understood that the spatially relative terms are intended to encompass different orientations of the device in use or operation in addition to the orientation depicted in the figures. For example, if the device in the figures is turned over, elements described as “below” or “beneath” other elements or features would then be oriented “above” the other elements or features. Thus, the exemplary term “below” can encompass both an orientation of above and below. The device may be otherwise oriented (rotated 90 degrees or at other orientations) and the spatially relative descriptors used herein interpreted accordingly.

[0034] The use of the terms “a” and “an” and “the” and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms “comprising,” “having,” “including,” and “containing” are to be construed as open-ended terms (i.e., meaning “including, but not limited to,”) unless otherwise noted.

[0035] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. It is noted that the use of any and all examples, or example terms provided herein is intended merely to better illuminate the invention and is not a limitation on the scope of the invention unless otherwise specified. Further, unless defined otherwise, all terms defined in generally used dictionaries may not be overly interpreted.

[0036] The example embodiments of invention will be described with reference to perspective views, cross-sectional views, and/or plan views, in which example embodiments are shown. Thus, the profile of an example view may be modified according to manufacturing techniques and/or allowances. That is, the example embodiments of the invention are not intended to limit the scope of the invention but cover all changes and modifications that can be caused due to a change in manufacturing process. Thus, regions shown in the drawings are illustrated in schematic form and the shapes of the regions are presented simply by way of illustration and not as a limitation.

[0037] Hereinafter, a display driving circuit and a display device including the same according to some example embodiments of inventive concepts will be described with reference to FIGS. 1 to 16.

[0038] FIG. 1 is a block diagram explaining a display device according to some example embodiments of inventive concepts.

[0039] Referring to FIG. 1, a display device **1000** according to some example embodiments of inventive concepts may be any one of various kinds of display devices. For example, the display device **1000** may be an organic light emitting diode display (OLED), a liquid crystal display (LCD), a display panel (DP) device, an electrochromic display (ECD), a digital mirror device (DMD), an actuated mirror device (AMD), a grating light valve display (GLV), a plasma display panel (PDP), or an electroluminescent display (ELD).